

**FINDING OF NO SIGNIFICANT IMPACT
FOR
ELK MEADOWS RANCHETTES COUNTY WATER DISTRICT
WATER SYSTEM IMPROVEMENTS**

TO: ALL INTERESTED PERSONS

Date: April 15, 2008

Action: Water System Improvements Including:

1. Drill one (1) or, if necessary, two (2) additional water supply wells;
2. Install a second boost pump in the upper boost pump station;
3. Install aeration equipment for corrosion control;
4. Construct distribution system improvements including looping and the installation of a new main on East Wapiti Lane;
5. Install water meters at all service connections;
6. Modify the existing middle storage reservoir to increase capacity; and
7. Clean, coat, and make foundation system improvements to the upper storage reservoir.

Location of Project: Elk Meadows Ranchettes County Water District
Missoula County, Montana

DEQ Funding: \$ 475,000

Total Project Cost: \$ 985,000

An environmental review has been conducted by the Montana Department of Environmental Quality (DEQ) for proposed funding for improvements to the Elk Meadows Ranchettes County Water District's water system. The proposed project involves the construction of improvements as listed above. The purpose of the project is to make improvements to the drinking water system that are needed to protect public health.

The affected environment will primarily be the area within the boundaries of the Elk Meadows Ranchettes County Water District and the immediate vicinity. The human environment affected will include the public water system and the 55 residences located within the District. Based on the environmental assessment, the project is not expected to have any significant adverse impacts upon terrestrial and aquatic life or habitat including endangered species, water quality or quantity, air quality, geological features, cultural or historical features, or social quality.

This project will be funded with grants and a low interest loan through the Montana Drinking Water State Revolving Fund Loan Program, administered by the Montana Department of Environmental Quality (DEQ) and the Montana Department of Natural Resources and Conservation (DNRC).

The DEQ utilized the following references in completing its environmental review of this project: a Uniform Environmental Checklist for Montana Public Facility Projects and a Preliminary Engineering Report dated May, 2006, both by Anderson-Montgomery Consulting Engineers, consulting engineer for Elk Meadows Ranchettes County Water District; and an environmental checklist completed by the DEQ. In addition to these references, letters were sent to: the Montana Department of Environmental Quality (DEQ); the Montana Department of Fish, Wildlife & Parks (DFWP); the Montana Department of Natural Resources and Conservation (DNRC); the United States Fish and Wildlife Service (USFWS); and the Montana State Historic Preservation Office (SHPO). Responses have been received from DEQ, DFWP, SHPO, and DNRC. These references are available for review upon request by contacting:

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or

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Phone (406) 626-5375

Comments on this finding or on the EA may be submitted to DEQ at the above address. Comments must be postmarked no later than May 30, 2008. After evaluating substantive comments received, DEQ will revise the EA or determine if an EIS is necessary. Otherwise, this finding of no significant impact will stand if no substantive comments are received during the comment period, or if substantive comments are received and evaluated and the environmental impacts are still determined to be non-significant.

Todd Teegarden, P.E., Chief
Technical and Financial Assistance Bureau

ELK MEADOWS RANCHETTES COUNTY WATER DISTRICT
DRINKING WATER FACILITIES

ENVIRONMENTAL ASSESSMENT

I. COVER SHEET

A. PROJECT IDENTIFICATION

Applicant: Elk Meadows Ranchettes County Water District

Address: Frenchtown, Montana

Project Number: Not Yet Assigned

B. CONTACT PERSON

Name: Roger Cox, President
Elk Meadows Ranchettes County Water District

Address: P.O. Box 703
Frenchtown, MT 59834

Telephone: (406) 626-5375

C. ABSTRACT

Elk Meadows Ranchettes County Water District is located in Missoula County approximately twenty (20) miles west of Missoula. The District's water system currently utilizes two (2) wells to provide water to 55 residential and no commercial properties. Other components of the system include three (3) small storage tanks, a 110,000 gallon steel storage reservoir, 16,600 lineal feet of water distribution lines, two (2) boost pump facilities, and seven (7) fire hydrants. The water is chlorinated and treated with a corrosion inhibitor prior to distribution.

Deficiencies currently associated with the system include the following:

1. Inadequate water supply;
2. Inadequate corrosion control;
3. Lack of metering;
4. Inadequate fire protection due to lack of storage; and
5. Inconsistent and inadequate system pressures during periods of high demand due to lack of storage and distribution system looping.

The recommended alternatives from the preliminary engineering report include the following improvements:

1. Drill one (1) or, if necessary, two (2) additional water supply wells;
2. Install a second boost pump in the upper boost pump station;
3. Install aeration equipment for corrosion control;
4. Construct distribution system improvements including looping and the installation of a new main on East Wapiti Lane;
5. Install water meters at all service connections;
6. Modify the existing middle storage reservoir to increase capacity; and

7. Clean, coat, and make foundation system improvements to the upper storage reservoir.

The proposed water system improvements will ensure that drinking water meeting state and federal regulations is provided to all homes within the District.

The project will be funded by grants through the Montana Department of Natural Resources and Conservation Renewable Resource Grant and Loan Program, the Montana Department of Commerce Treasure State Endowment Program, local District funds, and a State Revolving Fund loan. Environmentally sensitive issues and features such as wetlands, floodplains, and threatened or endangered species are not expected to be adversely impacted as a consequence of the proposed project. No significant long-term environmental impacts were identified. It may be necessary to determine the impacts of new wells on existing wells as part of the water rights application process with the State of Montana.

D. COMMENT PERIOD

Thirty (30) calendar days.

II. PURPOSE AND NEED FOR ACTION

A. DRINKING WATER SUPPLY, STORAGE, AND DISTRIBUTION SYSTEMS

The Elk Meadows Ranchettes County Water District is located in Missoula County approximately 20 miles west of Missoula. The District's water system utilizes two (2) wells which provide water to 55 existing homes. Other components of the system include three (3) small tanks, a 110,000-gallon steel storage reservoir, 16,600 lineal feet of distribution mains, two (2) boost pump facilities, and seven (7) fire hydrants. The water is disinfected with chlorine, and a corrosion inhibitor is added prior to distribution.

The primary deficiencies associated with the system relate to health and safety issues caused by an inadequate supply of water for domestic needs and fire protection. The system cannot provide sufficient water during high demand periods, and no redundancy is provided by the wells due to the limited capacity of each well. The district lacks adequate water rights to meet existing and future demands. The water supply is corrosive and violates regulatory standards for copper. The distribution system is undersized and does not include water meters at all service connections. The water storage reservoirs in the system are undersized and are in need of improvements.

B. PROPOSED PROJECT

The proposed project includes the following improvements:

1. Drill one (1) or, if necessary, two (2) additional water supply wells;
2. Install a second boost pump in the upper boost pump station;
3. Install aeration equipment for corrosion control;
4. Construct distribution system improvements including looping and the installation of a new main on East Wapiti Lane;
5. Install water meters at all service connections;
6. Modify the existing middle storage reservoir to increase capacity from 110,000 gallons to 206,000 gallons; and

7. Clean, coat, and make foundation system improvements to the upper storage reservoir.

Adequate water supply, storage, and distribution are important to the public health and safety of the residents of Elk Meadows Ranchettes County Water District. Without these, water quality and public health and safety are at risk.

III. ALTERNATIVES INCLUDING THE PROPOSED ACTION

A. WATER SUPPLY ALTERNATIVES

Water supply alternatives include:

1. Groundwater sources. The existing two (2) wells provide approximately 68 gallons per minute (gpm). The maximum daily demand is estimated to be 76 gpm. Accordingly, the wells do not provide a sufficient amount of water working together to meet maximum demands; additionally, Circular DEQ-1 redundancy requirements for a groundwater system are not being met. As a result, it will be necessary to develop an additional groundwater source.
2. Surface water sources. Due to excessive cost and the non-availability of surface water rights, this alternative was eliminated from further consideration.
3. Boost pump alternatives. An additional boost pump to the upper storage tank is needed to sufficiently meet the demands of users in the upper pressure zone. Only one (1) alternative was considered other than “no-action”. The selected alternative is to install a 7.5 horsepower boost pump capable of pumping 70 gpm against a 220-foot dynamic head in the existing upper pump station building.
4. Corrosion control. The existing groundwater has a low pH, low alkalinity, and low dissolved solids, making it corrosive. Chemical treatment is currently being utilized with limited success due to the excessively low pH levels of the raw water being supplied by the existing wells. As a result, two (2) other alternatives were considered:

A. Lime treatment. The control of pH through the addition of lime (CaOH) was considered as an alternative. However, due to excessive operational costs, this alternative has been eliminated from further consideration.

B. Aeration. Groundwater sometimes contains carbon dioxide which, in solution, forms a weak corrosive acid. An aeration system can be used to remove the carbon dioxide and raise the pH of the water, thus reducing its corrosive quality. This is the selected alternative for corrosion control based on favorable cost, operational requirements, and environmental considerations.

B. WATER STORAGE ALTERNATIVES

Additional storage is required to provide adequate flows and stable pressures during periods of peak demand or during a fire. To meet these requirements, the District proposes to increase storage for the middle pressure zone and to rehabilitate the storage reservoir serving the upper pressure zone.

Two alternatives for increasing storage include:

1. Increase the capacity of the existing 110,000-gallon storage reservoir. By adding rings to the steel structure, capacity can be increased from 110,000 gallons to 206,000 gallons.
2. Construct a new 100,000-gallon on-grade steel storage tank. Due to excessive cost, this alternative was removed from further consideration.

Other than “no-action”, only one alternative was considered to address storage deficiencies associated with the upper pressure zone. That alternative is to clean, coat, and make foundation improvements to the existing 13,000-gallon tank.

C. WATER DISTRIBUTION SYSTEM ALTERNATIVES

Deficiencies associated with the water distribution system include inadequate sizing to carry adequate flows and maintain stable pressures during a fire; inherent health risks associated with the use of asbestos cement pipe for a portion of the system; inadequate looping resulting in potential stagnation and unstable pressures during periods of high demand; lack of a sufficient number of fire hydrants; and lack of water meters to encourage water conservation and provide a fair and accurate billing system.

Three alternatives addressing the District’s water distribution needs included:

1. Replace all existing 4” pipe with 6” pipe except for the portion of line between the middle storage tank and the upper storage tank;
2. Replace approximately 2,150 lineal feet of 4” main with 6” main along East Wapiti Lane. Other 4” piping will remain. This alternative will provide adequate flows and pressures at all fire hydrants with the exception of one located at the end of Cankuna Court, thus leaving some homes in this area a further distance than desirable from a hydrant providing adequate flow during a fire.
3. Install water meters at all service connections. Meters are necessary to encourage water conservation for this system. Due to lot size and various plumbing configurations, the alternative of installing meters in pits close to the property line is the selected alternative.

D. COST COMPARISON - PRESENT WORTH ANALYSES

The present worth analysis is a method of comparing alternatives in present day dollars and is used to determine the most cost-effective alternative. Capital cost is first adjusted by subtracting the present worth of the salvage value at the end of 20 years. The present worth value of the annual operating and maintenance costs is calculated assuming a 6.0% interest rate over the 20-year planning period. The present worth of the annual operation and maintenance costs is then added to the adjusted capital cost to provide the total present worth cost of each alternative. These values are compared to determine the most cost-effective alternative.

1. Table 1 provides a summary of the present worth analysis of the water supply improvements that were considered following the alternative screening process.

Table 1. Present Worth Analysis for Water Supply Improvements

	Water Supply Improvements				
	Item 1 Drill New Well	Item 2 Install Auxiliary Generator	Item 3 Boost Pump Station Upgrades	Item 4-Alt. 1 Corrosion Control-Lime Treatment	Item 4-Alt. 2 Corrosion Control-Aeration
Capital Cost (2006)	\$63,180	\$84,320	\$34,680	\$81,600	\$76,840
20-Year Salvage Value	\$0	\$750	\$2,500	\$0	\$0
Present Worth of Salvage Value (6.0%)	\$0	\$234	\$780	\$0	\$0
Annual O&M Costs	\$2,450	\$2,400	\$1,950	\$5,900	\$2,950
Present Worth of Annual O&M Costs (6.0%)	\$28,102	\$27,528	\$22,367	\$67,673	\$33,837
Total Present Worth Cost	\$91,282	\$111,614	\$56,267	\$149,273	\$110,677

2. Table 2 provides a summary of the present worth analysis for water storage improvements that were considered following the alternative screening process.

Table 2. Present Worth Analysis for Water Storage Improvements

	Water Storage Improvements				
	Item 1-Alt. 1 Construct New Storage Reservoir	Item 1-Alt. 2 Increase Capacity of Existing Storage Reservoir	Item 2 Minor Upgrades to Upper Tank		
Capital Cost (2006)	\$317,560	\$162,520	\$43,520		
20-Year Salvage Value	\$112,500	\$55,750	\$13,750		
Present Worth of Salvage Value (6.0%)	\$35,078	\$17,383	\$4,287		
Annual O&M Costs	\$3,050	\$2,450	\$2,050		
Present Worth of Annual O&M Costs (6.0%)	\$34,984	\$28,102	\$23,514		
Total Present Worth Cost	\$317,466	\$173,239	\$62,747		

3. Table 3 provides a summary of the present worth analysis for water distribution improvements that were considered following the alternative screening process.

Table 3. Cost Summary for Water Distribution Improvements

	Water Distribution Improvements				
	Item 1 Water Meters	Item 2 Loop and Upgrade All Lines to 6"	Item 3 Loop and Upgrade E. Wapiti to 6"		
Capital Cost (2006)	\$103,700	\$454,648	\$265,744		
20-Year Salvage Value	\$17,875	\$129,000	\$43,450		
Present Worth of Salvage Value (6.0%)	\$5,573	\$40,222	\$13,548		
Annual O&M Costs	\$2,350	\$1,265	\$795		
Present Worth of Annual O&M Costs	\$26,955	\$14,510	\$9,119		
Total Present Worth Cost	\$125,082	\$428,936	\$261,315		

E.. TOTAL ESTIMATED COSTS

The total estimated cost of the project is \$985,000, broken down as follows:

Administrative and Financial Costs:	\$ 63,000
Land Acquisition Costs:	\$ 0
Engineering Costs, including Inspection	\$ 188,000
Construction Costs	\$ 659,000
Construction Contingency	<u>\$ 75,000</u>
Total Estimated Cost	\$ 985,000

F. USER COSTS AND AFFORDABILITY

The current average monthly residential water rate within the District is approximately \$60.00. This project will require a loan in the approximate amount of \$475,000, resulting in a projected average rate of \$110.00 per month.

IV. AFFECTED ENVIRONMENT

A. PLANNING AREA DESCRIPTION

The Elk Meadows Ranchettes County Water District is located approximately 20 miles west of Missoula. The subdivision is located north of Interstate 90 and includes 88 residential lots with no commercial development. Fifty-five (55) of the lots have been developed for residential purposes.

B. PROPOSED PROJECT SUMMARY

The proposed project includes upgrades to an existing system that was constructed in the late 1970's. The source of water for the system is groundwater provided by two (2) wells; storage is provided by three (3) 13,000-gallon storage tanks and one recently-constructed 110,000-gallon steel storage reservoir.

Included in the proposed project are the drilling of one (1) and possibly two (2) new wells to increase supply; improvements to the upper zone boost pump station; the installation of aeration equipment to provide corrosion control by increasing pH of the produced water; distribution system upgrades including partial replacement and looping; the installation of water meters at all service connections; expansion of the recently constructed steel storage reservoir from 110,000 gallons to 206,000 gallons; and minor improvements including cleaning, coating, and foundation improvements at the upper zone storage tank.

The project is being constructed in phases. At the time of this report, 500' of water main has been replaced, and plans for the installation of water meters are complete. Plans for the expansion of the middle storage tank are being prepared. The project is scheduled for completion late in 2008.

C. POPULATION PROJECTIONS AND PROJECT DESIGN CRITERIA

Future design populations for the design year 2026 are based on 88 homes and a population of 250 persons. An additional 10% increase in capacity is included in the design of future improvements to provide some allowance for unanticipated demands on the system.

Design Year:	2026
Number of Hookups	88
Projected Population	250
Average Demand Per Capita	220 gallons per capita per day
Design Average Daily Demand	55,000 gallons per day
Daily Peaking Factor	3.2
Design Peak Daily Demand	176,000 gallons per day
Hourly Peaking Factor	3.0
Peak Hourly Demand	367 gallons per minute

D. NATURAL FEATURES AND LAND USE WITHIN THE PLANNING AREA

The land use within the District is entirely residential. The area is primarily forest land with some pasture land in the southern portions. Lots are generally five to ten acres in area. Sixmile Creek crosses the northwest corner of the District. The community of Frenchtown is located approximately three miles southeast of the District and includes the nearest commercial development.

V. ENVIRONMENTAL IMPACTS OF PROPOSED PROJECT

A. DIRECT AND INDIRECT ENVIRONMENTAL IMPACTS

1. Housing and Commercial Development – Land use within the district boundaries is totally residential. It is anticipated that this project will enable the development of the remaining 33 lots within the District.

2. Future Land Use – Land use within the District boundaries is residential and is not expected to change significantly in the future. No adverse impacts to land use are expected from the proposed project.
3. Floodplains and Wetlands –A flood plain is located adjacent to Sixmile Creek, and the water supply wells are located within the flood plain. However, the Preliminary Engineering Report states that top-of-casing elevations exceed the elevation of the 100-year flood crest. Existing and future residences within the District will be located outside the flood plain area.
4. Cultural Resources –No significant impacts are anticipated. In the event that cultural artifacts are encountered during construction, the Montana State Historic Preservation Office will be notified.
5. Fish and Wildlife – The Montana Department of Fish, Wildlife, and Parks was contacted to identify any unique resources within the project area. No long-term adverse impacts are anticipated.
6. Water Quality – No long-term adverse impacts are anticipated. A beneficial impact will be a reduction in corrosivity, resulting in compliance with federal standards for copper content in drinking water.
7. Air Quality - Short-term negative impacts on the air quality will occur from heavy equipment, dust, and exhaust fumes during project construction. Proper construction practices and dust abatement measures will be implemented during construction to control dust, thus minimizing this problem.
8. Public Health – The proposed project is not expected to have adverse impacts on public health and should, instead, enhance public health by providing a safe and reliable water supply for the community.
9. Energy – Because of improvements in the efficiency of new pumps, controls, and telemetry associated with the project, long-term energy savings are anticipated.
10. Noise - Short-term impacts from increased noise levels may occur during construction of the proposed project improvements. No long-term adverse impacts are anticipated.

B. UNAVOIDABLE ADVERSE IMPACTS

Short-term construction impacts including noise, dust, and traffic disruption will occur but should be minimized through proper construction management. Energy consumption during construction cannot be avoided.

VI. PUBLIC PARTICIPATION

The District has ensured public participation during the development of this project. A public meeting was held on December 6, 2005, and a public hearing was held on April 9,

2006. The project budget and proposed user costs were discussed at the public hearing. There is positive support for the project from the water users within the District.

VII. REFERENCE DOCUMENTS

The following documents were utilized in the environmental review of this project and are considered to be part of the project file:

- A. Water System Preliminary Engineering Report; May 2006; prepared by Anderson-Montgomery Consulting Engineers, Helena, Montana.
- B. Contract Documents & Specifications for the Water Main Repair Project, November 2007; prepared by Anderson-Montgomery Consulting Engineers, Helena, Montana.
- C. Draft Contract Documents & Specifications for the Water Metering Project; April 2008; prepared by Anderson-Montgomery Consulting Engineers, Helena, Montana.

VIII. AGENCIES CONSULTED

The following agencies were contacted regarding the proposed construction of this project:

- A. The Montana Department of Environmental Quality
- B. The Montana Historical Society's Historic Preservation Office
- C. The Montana Department of Natural Resources and Conservation
- F. The Montana Department of Fish, Wildlife, and Parks
- G. The U.S. Fish and Wildlife Service

No adverse comments were received.

IX. APPLICABLE REGULATIONS AND PERMITTING AUTHORITIES

No additional permits will be required from the Drinking Water State Revolving Fund Program of the Department of Environmental Quality for this project after review and approval of the submitted plans and specifications. However, a stormwater general discharge permit for construction activities may be required from the department's Water Protection Bureau prior to the beginning of construction if a land disturbance of one acre or more is planned closer than 100 feet from a surface water body or if any disturbance of five acres or more is anticipated. A construction dewatering permit from the department's Water Protection Bureau may also be required if groundwater is encountered during construction of the new facilities and dewatering activities are necessary.

X. RECOMMENDATION FOR FURTHER ENVIRONMENTAL ANALYSIS

☐ EIS ☐ More Detailed EA ☒ No Further Analysis

Rationale for Recommendation: Through this environmental assessment, the department has made a preliminary determination that none of the adverse impacts of the proposed Elk Meadows Ranchettes County Water District water system improvements project are significant. Therefore, an environmental impact statement

is not required. The environmental review was conducted in accordance with the Administrative Rules of Montana (ARM) 17.4.607, 17.4.608, 17.4.609 and 17.4.610.

The environmental assessment is the appropriate level of analysis because none of the adverse effects of the impacts are expected to be significant.

EA prepared by:

Bob Fischer, P.E.

Date

EA reviewed by:

Mark Smith, P.E.

Date